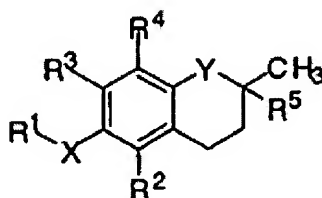


AMENDMENT

Claim 1 (currently amended): A method for inhibiting the growth of tumor cells in an individual comprising administering to the individual a pharmacologically effective dose of a compound having a structural formula



Wherein X is oxygen or nitrogen;

Y is oxygen or NR⁶

R¹ is -C₁₋₁₀alkylene-COOH, -C₁₋₄alkylene-CONH₂, -C₁₋₄alkylene-COO-C₁₋₄alkyl, -C₁₋₄alkylene-CON(C₁₋₄alkylene-COOH)₂, -C₁₋₄alkylene-OH, -C₁₋₄alkylene-NH₃-halo or -C₁₋₄alkylene-OSO₂NH(C₁₋₄alkyl), -C₁₋₄alkylene-COO-C₁₋₄alkyl, -C₁₋₁₀alkylene-CO-SH, -C₁₋₄alkylene-CO-S(C₁₋₄alkyl), -C₁₋₄alkylene-CS-NH₂, -C₁₋₄alkylene-CO-NH_(2-n)(C₁₋₄alkyl)_n wherein n is 2 or 1, -C₁₋₄alkylene-SO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OSO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OP(O-C₁₋₄alkyl)₃, or -C₁₋₁₀alkylene-CN;

R² and R³ are independently hydrogen or R⁴ ~~when R⁷ is XR¹; or~~

~~R² and R³ are hydrogen or R² and R³ are R⁴ or R² is hydrogen and R³ is R⁴ when R⁷ is hydroxyl;~~

R⁴ is methyl;

R⁵ is a C₇₋₁₆ olefinic group containing 3 to 5 ethylenic bonds;

R⁶ is hydrogen or methyl; ~~and~~

~~R⁷ is hydroxyl or XR¹; or a pharmaceutical composition thereof.~~

Claim 2 (original): The method of claim 1, wherein said compound is α -tocotrienol, γ -

tocotrienol or δ -tocotrienol.

Claim 3 (original): The method of claim 1, wherein said compound is 2,5,7,8-tetramethyl-2R-(4,8,12-trimethyl-3,7,11 E:Z tridecatrien) chroman-6-yloxy) acetic acid.

Claim 4 (previously presented): The method of claim 1, wherein said compound induces apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation in cells comprising said tumor.

Claim 5 (previously presented): The method of claim 1, wherein said compound is administered in a dose of about 1 mg/kg to about 60 mg/kg.

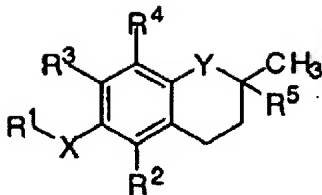
Claim 6 (previously presented): The method of claim 5, wherein administration of said composition is oral, topical, liposomal/aerosol, intraocular, intranasal, parenteral, intravenous, intramuscular, or subcutaneous.

Claim 7 (canceled).

Claim 8 (currently amended): The method of claim 1, wherein said tumor cells comprise an ovarian cancer, a cervical cancer, an endometrial cancer, a bladder cancer, a lung cancer, a breast cancer, a testicular cancer, a prostate cancer, a glioma, a fibrosarcoma, a retinoblastoma, a melanoma, a soft tissue sarcoma, an osteosarcoma, a leukemia, a colon cancer, a carcinoma of the kidney, a pancreatic cancer, a basal cell carcinoma, or a squamous cell carcinoma.

Claims 9-13 (canceled).

Claim 14 (currently amended): A method of inducing apoptosis of a cell, comprising the step of contacting said cell with a pharmacologically effective dose of a compound having a structural formula



Wherein X is oxygen or nitrogen;

Y is oxygen or NR⁶

R¹ is -C₁₋₁₀alkylene-COOH, -C₁₋₄alkylene-CONH₂, -C₁₋₄alkylene-COO-C₁₋₄alkyl, -C₁₋₄alkylene-CON(C₁₋₄alkylene-COOH)₂, -C₁₋₄alkylene-OH, -C₁₋₄alkylene-NH₃-halo or -C₁₋₄alkylene-OSO₂NH(C₁₋₄alkyl), -C₁₋₄alkylene-COO-C₁₋₄alkyl, -C₁₋₁₀alkylene-CO-SH, -C₁₋₄alkylene-CO-S(C₁₋₄alkyl), -C₁₋₄alkylene-CS-NH₂, -C₁₋₄alkylene-CO-NH_(2-n)(C₁₋₄alkyl)_n wherein n is 2 or 1, -C₁₋₄alkylene-SO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OSO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OP(O-C₁₋₄alkyl)₃, or -C₁₋₁₀alkylene-CN;

R² and R³ are independently hydrogen or R⁴ when R⁷ is XR⁺; or

~~R² and R³ are hydrogen or R² and R³ are R⁴ or R² is hydrogen and R³ is R⁴ when R⁷ is hydroxyl;~~

R⁴ is methyl;

R⁵ is a C₇₋₁₆ olefinic group containing 3 to 5 ethylenic bonds;

R⁶ is hydrogen or methyl; and

~~R⁷ is hydroxyl or XR⁺; or a pharmaceutical composition thereof.~~

Claim 15 (original): The method of claim 14, wherein said compound is α-tocotrienol, γ-tocotrienol or δ-tocotrienol.

Claim 16 (original): The method of claim 14, wherein said compound is 2,5,7,8-tetramethyl-2R-(4,8,12-trimethyl-3,7,11 E:Z tridecatrien) chroman-6-yloxy) acetic acid.

Claim 17 (canceled).

Claim 18 (new): The method of claim 1, wherein R^1 is $-C_{1-10}\text{alkylene-COOH}$.

Claim 19 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-CONH}_2$.

Claim 20 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-COO-C}_{1-4}\text{alkyl}$.

Claim 21 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-CON}(C_{1-4}\text{alkylene-COOH})_2$.

Claim 22 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-OH}$.

Claim 23 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-NH}_3\text{-halo}$.

Claim 24 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-OSO}_2\text{NH}(C_{1-4}\text{alkyl})$.

Claim 25 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-COO-C}_{1-4}\text{alkyl}$.

Claim 26 (new): The method of claim 1, wherein R^1 is $-C_{1-10}\text{alkylene-CO-SH}$.

Claim 27 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-CO-S}(C_{1-4}\text{alkyl})$.

Claim 28 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-CS-NH}_2$.

Claim 29 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-CO-NH}_{(2-n)}(C_{1-4}\text{alkyl})_n$ wherein n is 2 or 1.

Claim 30 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-SO}_2\text{-O}(C_{1-4}\text{alkyl})$.

Claim 31 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-OSO}_2\text{-O}(C_{1-4}\text{alkyl})$.

Claim 32 (new): The method of claim 1, wherein R^1 is $-C_{1-4}\text{alkylene-OP}(\text{O-C}_{1-4}\text{alkyl})_3$.

Claim 33 (new): The method of claim 1, wherein R^1 is $-C_{1-10}\text{alkylene-CN}$.

Claim 34 (new): The method of claim 1, wherein R^2 is hydrogen.

Claim 35 (new): The method of claim 1, wherein R² is methyl.

Claim 36 (new): The method of claim 1, wherein R³ is hydrogen.

Claim 37 (new): The method of claim 1, wherein R³ is methyl.

Claim 38 (new): The method of claim 1, wherein R⁴ is methyl.

Claim 39 (new): The method of claim 1, wherein R⁵ is a C₇₋₁₆ olefinic group containing 3 to 5 ethylenic bonds.

Claim 40 (new): The method of claim 1, wherein R⁶ is methyl.

Claim 41 (new): The method of claim 1, wherein R⁶ is hydrogen.

Claim 42 (new): The method of claim 14, wherein R¹ is -C₁₋₁₀alkylene-COOH.

Claim 43 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-CONH₂.

Claim 44 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-COO-C₁₋₄alkyl.

Claim 45 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-CON(C₁₋₄alkylene-COOH)₂.

Claim 46 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-OH.

Claim 47 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-NH₃-halo.

Claim 48 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-OSO₂NH(C₁₋₄alkyl).

Claim 49 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-COO-C₁₋₄alkyl.

Claim 50 (new): The method of claim 14, wherein R¹ is -C₁₋₁₀alkylene-CO-SH.

Claim 51 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-CO-S(C₁₋₄alkyl).

Claim 52 (new): The method of claim 14, wherein R¹ is -C₁₋₄alkylene-CS-NH₂.

Claim 53 (new): The method of claim 14, wherein R^1 is $-C_{1-4}\text{alkylene-CO-NH}_{(2-n)}(C_{1-4}\text{alkyl})_n$ wherein n is 2 or 1.

Claim 54 (new): The method of claim 14, wherein R^1 is $-C_{1-4}\text{alkylene-SO}_2\text{-O}(C_{1-4}\text{alkyl})$.

Claim 55 (new): The method of claim 14, wherein R^1 is $-C_{1-4}\text{alkylene-OSO}_2\text{-O}(C_{1-4}\text{alkyl})$.

Claim 56 (new): The method of claim 14, wherein R^1 is $-C_{1-4}\text{alkylene-OP}(\text{O}-C_{1-4}\text{alkyl})_3$.

Claim 57 (new): The method of claim 14, wherein R^1 is $-C_{1-10}\text{alkylene-CN}$.

Claim 58 (new): The method of claim 14, wherein R^2 is hydrogen.

Claim 59 (new): The method of claim 14, wherein R^2 is methyl.

Claim 60 (new): The method of claim 14, wherein R^3 is hydrogen.

Claim 61 (new): The method of claim 14, wherein R^3 is methyl.

Claim 62 (new): The method of claim 14, wherein R^4 is methyl.

Claim 63 (new): The method of claim 14, wherein R^5 is a C_{7-16} olefinic group containing 3 to 5 ethylenic bonds.

Claim 64 (new): The method of claim 14, wherein R^6 is methyl.

Claim 65 (new): The method of claim 14, wherein R^6 is hydrogen.